# UNITED STATES PATENT AND TRADEMARK OFFICE

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| EXAMINER |
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| VO, LILIAN |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *29 October 2007*.

2a) ☐ This action is **FINAL**.     2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1 - 32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1 - 32* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

    1. ☐ Certified copies of the priority documents have been received.

    2. ☐ Certified copies of the priority documents have been received in Application No. _____.

    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

## DETAILED ACTION

1.      Claims 1 – 32 are pending.

2.      A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible

for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been

timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR

1.114. Applicant's submission filed on 10/29/07 has been entered.

### *Claim Rejections - 35 USC § 103*

3.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.      Claims 1 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Abbondanzio et al. (US 5,890,011, hereinafter Abbon) in view of Sankaranarayan et al. (US

6,799,208, hereinafter Sankaran).

5.      As to **claims 1, 14**, Abbon teaches the invention as claimed including, a computer

implemented method, comprising:

storing a list of physical resource objects (Fig. 3, col. 4 line 60 – col. 6 line 29);

storing a list of parent and child objects (fig. 3);

creating a tree of relationships of the parent and child objects to the physical resource

object, wherein a child object of a parent object represents a resource consumer of a resource

producer associated with the parent object (fig. 3, col. 3 line 66 – col. 4 line 37, 60 – col. 6 line

29, col. 5 line 53 – col. 6 line 65); and

determining a net availability of the resource producer associated with the parent object

by traversing the tree of relationships and retrieving consumption information included in each

child object of the tree of relationships to calculate the net availability of the resource producer

(col. 3 line 65 – col. 4 line 15, col. 6 lines 1 – 36).

With respect to the limitation of determining a net availability of the resource producer

associated with the parent object by traversing the tree of relationships and retrieving

consumption information included in each child object of the tree of relationships to calculate the

net availability of the resource producer, Abbon discloses that a bus manager which "provides a

set of services utilized to detect, query, translate, and configure a hardware device that is

attached to a bus dynamically...understand the specific hardware details required to perform

these services...are responsible for providing information such as bus configuration and device

configuration to the HRM. The HRM then stores all the bus configuration information and

devices configuration information in a hierarchical tree..."(col. 3 line 65 – col. 4 line 15). By

this, Abbon's system is capable of performing the step of retrieving consumption information

included in each child object of the tree. Also, Abbon's system must have been keeping track of

the consumption information of each child object in the tree and using such information in order

to make a dynamic determination as whether or not the resource is available to fulfill the request

(col. 6 lines 1 – 30, col. 7 lines 5 – 10). Therefore, Abbon inherently discloses the concept of retrieving consumption information included in each child object of the tree of relationships to calculate the net availability of the resource producer.

Abbon teaches parent resource objects represent resource producers that including physical resource (I/O port address, I/O memory address, etc, col. 4 line 60 – col. 6 line 29) but does not specifically teach virtual resources. Sankaran teaches resource objects and management, wherein resource objects represent virtual resources (bandwidth, col. 1 lines 10 - 17) in addition to physical resource (hardware device, ports col. 4 lines 38 – 47, 65 – col. 5 line 7). Therefore, it would have been obvious for one of an ordinary skill in the art, at the time the invention was made to include virtual resources into the resources represented by the parent resource objects of Abbon because this would have provided resource management and allocation to different users/applications (col. 2 lines 60 – 67, col. 4 lines 38 – 64).

6.      As to **claim 2**, as modified Abbon teaches the invention as claimed including the method of claim 1, wherein storing a list of virtual resource objects includes storing an object representing system memory bandwidth (Sankaran: col. 4, lines 38-47).

7.      As to **claim 3**, as modified Abbon teaches the invention as claimed including wherein storing a list of child objects includes storing an object representing a functional unit that consumes bandwidth (Sankaran: col. 4, line 65 to col. 5, line 7).

8.      As to **claim 4**, as modified Abbon teaches the invention as claimed including, wherein storing an object representing a functional unit that consumes bandwidth includes storing an indication of the amount of bandwidth consumed (Sankaran: col. 4, line 65 to col. 5, line 7).

9.      As to **claims 5 - 7**, as modified Abbon does not explicitly teach of consuming bandwidth that represents "an overlay unit", "cursor unit", and "display output unit". However, it is well known in the art at the time the invention was made to use resource as a finite quantity of computing component in the computer system representing hardware such as "an overlay unit", "cursor unit" and "display output unit", as suggested by Sankaran in col. 4, lines 38-47.

10.     As to **claim 8**, as modified Abbon teaches the invention as claimed including, wherein a root of the tree represents a physical resource object (Abbon: fig. 3, Sankaran: col. 9 lines 7 – 21).

11.     As to **claim 9**, as modified Abbon teaches the invention as claimed including, wherein storing a list of child objects includes storing an object representing a functional unit that consumes bandwidth (Sankaran: col. 4, line 65 to col. 5, line 7).

12.     As to **claims 10 - 13**, as modified Abbon does not explicitly teach of consuming bandwidth that represents "an overlay unit", "cursor unit", "display output unit", and "local graphic memory". However, it is well known in the art at the time the invention was made to use resource as a finite quantity of computing component in the computer system representing

hardware such as "an overlay unit", "cursor unit", "display output unit", and "local graphic

memory", as suggested by Sankaran in col. 4, lines 38-47.

13.      As to **claims 15 - 16**, they are rejected on the same ground as stated in claims 3, and 5 - 8.

14.      As to **claims 17 - 29**, they are rejected on the same ground as stated in claims 1 - 13

respectively.

15.      As to **claims 30 - 32**, they are rejected on the same ground as stated in claims 14 - 16

respectively.

### *Response to Arguments*

16.      Applicant's arguments filed 10/29/07 have been fully considered but they are not

persuasive for the reasons set forth below.

17.      Applicant argues that Abbon fails to teach or suggest the limitation of determining a net

availability of the resource producer associated with the parent object by traversing the tree of

relationships and retrieving consumption information included in each child object of the tree of

relationships to calculate the net availability of the resource producer, (page 7 last paragraph –

page 8 first paragraph), the examiner disagrees. Abbon discloses that a bus manager which

"provides a set of services utilized to detect, query, translate, and configure a hardware device

that is attached to a bus dynamically...understand the specific hardware details required to

perform these services...are responsible for providing information such as bus configuration and device configuration to the HRM. The HRM then stores all the bus configuration information and devices configuration information in a hierarchical tree..." (col. 3 line 65 – col. 4 line 15). By this, Abbon's system is capable of performing the step of retrieving consumption information included in each child object of the tree. Also, Abbon's system must have been keeping track of the consumption information of each child object in the tree and using such information in order to make a dynamic determination as whether or not the resource is available to fulfill the request (col. 6 lines 1 – 30, col. 7 lines 5 – 10). Therefore, Abbon inherently discloses the concept of retrieving consumption information included in each child object of the tree of relationships to calculate the net availability of the resource producer.

Furthermore, the concept of calculating resource requirements of a child resource object/device and determining whether sufficient parent resource is available to satisfy the requirement of the child resource can also be found in Sankaran as well (col. 4 line 65 – col. 5 line 7).

### *Conclusion*

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 571-272-3774. The examiner can normally be reached on Thursday 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lilian Vo
Examiner
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December 19, 2007

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